A BestPractices PUBLICATION ON IMPROVING INDUSTRIAL ENERGY EFFICIENCY

ENERGY MATTERS

September/October 2000

ISSUE FOCUS:
How to Choose Contracting Services

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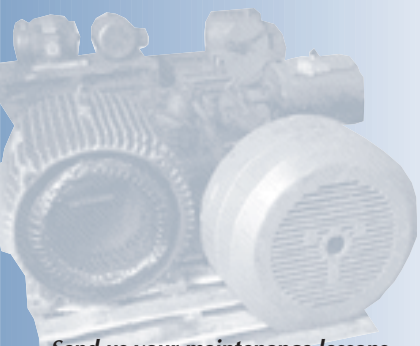

Send us your maintenance lessons learned, see page 5.

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BestPractices Partnership Gives Mill an "Instant Efficiency Improvement"

When Lashway Logging partnered with a team of companies to make a major equipment upgrade, the results were remarkable—mill efficiency increased by 33%, downtime for repair and maintenance decreased substantially, and energy costs were reduced by more than $2,000 per year.

Lashway Logging is a single-mill forest products supplier in Williamsburg, Massachusetts, producing between 2.5 million and 3 million board feet of lumber per year. It currently employs 25 people. Lashway's livelihood depends on reliable and efficient performance, specifically from the log carriage that moves the logs through the saw.

In 1995, Lashway began to reexamine the motor system that drives the log carriage. Company officer Brian Lashway said that because the company planned to replace its 5,000-pound carriage with a new 7,500-pound unit, it made sense to consider replacing the drive system as well.

Lashway enlisted McKenney Electric, based in Holyoke, Massachusetts, to research new drive systems. McKenney developed a plan to use a mechanically simpler but technologically advanced variable-speed regenerative vector drive, and used Baldor Motors and Drives of Fort Smith, Arkansas, a BestPractices Allied Partner, to help create the system.

The motor system for a log carriage is built for repeated accelerating and braking. Constant acceleration, slowing, and reverses put a great deal of pressure and stress on a drive system. The old system's overall efficiency was low—around 60%.

(continued on page 2) ▶

Photo courtesy of Baldor

Previously, other parts of Lashway's sawing system were upgraded; now, the mill has implemented new technology to improve the vital carriage drive.

Editor's Note: The Process Heating Supplement scheduled for this issue will appear in a future issue of Energy Matters.

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COMMENTS?

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BestPractices Partnership Gives Mill an "Instant Efficiency Improvement"

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Furthermore, the hydraulic system often broke down. "We blew apart three hydraulic systems during cold weather operation due to stress on the system," Brian Lashway said.

To address both issues, McKenny and Baldor supplied a 50 hp vector drive motor and line regenerative vector control for Lashway's log carriage. The new system involved an electronically based regenerative control coupled with a premium efficiency motor, which drove the new cable drums. The system's big advantage is that it uses regenerative braking to recapture the moving carriage's kinetic energy. The vector drive not only recycles the energy, but also responds faster to the sawyer's commands, making the entire sawing process faster, and more efficient.

"The sawyer makes or breaks the saw mill. Providing a system that gives the sawyer more control over the carriage and the logs has a huge impact on the company," said Ed Cowern, who was a district manager for Baldor at the time of the transition.

There were a few glitches getting the system installed. It had to be reconfigured early on and Lashway had to construct a room to control the temperature and environment around the electronic controller.

"We had some problems, but that was due more to a lack of education than anything else. Even with that, we were quite thrilled when it was installed," said Lashway.

The elements of the system run at an efficiency of about 95%, offering a total efficiency in the mid-80s, a 33% improvement over the old system. Despite using a carriage that was 33% heavier than the old, Lashway actually saw energy costs go down by $2,000 to $3,000 per year. The local electrical utility also provided incentive, paying for $9,000 of the $20,000 bill. Furthermore, Lashway avoids the oil changes and breakdowns all too common to the old hydraulic system.

Overall, Lashway is very pleased. Brian Lashway said, "This upgrade has provided us with an instant efficiency improvement. We've also seen substantial energy savings—because each time we're braking we're saving." ●

Photo courtesy of Baldor

Lashway Logging's new regenerative vector drive allows energy to be recycled back into the power system.

Guest Column

Get It Done by Sharing the Benefits of Energy Projects

*By Jay Raggio, Manager, Energy Services, Global Energy Services (**ges**), Danville, CA, a member company of Emerson Performance Solutions*

Imagine your facility sits directly on top of an underground deposit of valuable minerals. You would like to tap into the value the minerals represent, but you don't know anything about mining and recovery. What if you offered to "share the wealth" with an experienced mining company if it will take on the necessary steps to recover the minerals?

This scenario may actually exist at many commercial and industrial facilities. Not that they literally sit on top of valuable mineral deposits, but they often do have substantial recurring expenses for the various forms of energy that they consume. These energy expenses can be "mined" for technically and economically feasible opportunities to reduce energy costs or be more profitable while using the same or less energy.

Explore the Opportunities

The values that may be gleaned from the current energy expenses and process and production metrics can be explored by a qualified energy services company, or ESCO. They will work closely with facility operators, turning over every rock to look for meaningful opportunities. ESCOs will accept compensation for performing such work through an arrangement to share the resulting financial gains with the facility owner.

Opportunities may take many forms, including:

- Changing energy price conditions by negotiating more favorable rates with current suppliers. For example, a time of use (TOU) rate may save on energy costs, depending on the facility load profile.
- Changing energy price conditions by selecting alternate, lower cost energy service providers (ESPs) rather than the traditional utility being the electric energy supplier.
- Changing price conditions by modifying the energy service conditions with current suppliers—for example, taking electrical service at primary voltage instead of secondary voltage. Service at primary voltage often has a lower unit price ($/kWh) than secondary voltage service.
- Mitigating adverse price conditions through the use of financial instruments and hedging strategies. Figure 1 provides an example of hedging. As the price of a key raw material increases, energy prices, through a negotiated contract with an ESP, decrease allowing the overall costs of production to remain relatively stable.
- Mitigating high energy cost conditions by shutting down nonessential equipment during high energy cost periods (load shedding), changing the time when energy intensive operations are carried out (load shifting), or even self-generating during high energy cost periods.
- Using less energy overall by implementing retrofit energy efficiency measures.
- Using less energy per unit of production by modifying process practices and/or technologies.

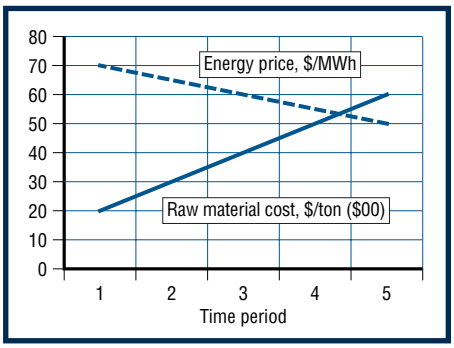


Figure 1. An example of energy price hedging.

There are no givens that an ESCO will always uncover opportunities worth pursuing. Thus, it is important that all parties understand and accept the risks as well as the potential rewards of embarking on a program to investigate energy cost savings opportunities. Further, every effort should be made to manage the risks in any arrangement to share future savings or benefits.

Define Criteria for Sharing Benefits

A facility operator must consider several important areas in any arrangement to share future benefits. From the beginning, define the criteria for success. For example, what minimum dollar value of savings must be achieved to make it worthwhile? If investments are likely, what return on investment must be achieved? What maximum payback period will be considered? What limitations will there be on disruption of the facility's occupants or its operations? By starting from a solid set of ground rules, you enable the ESCO to focus on finding the biggest "bang-for-the-buck" opportunities.

Have a clear and mutual understanding and quantification of where you are starting from—that is, identify the current energy costs and production per unit of energy. Collect and make available to the ESCO historical records of energy use, costs, and production statistics. The variables in past energy costs must be analyzed and assigned to quantifiable metrics such as cooling degree days, building occupancy profiles or production throughput. The ESCO will develop a computer-based energy consumption model for a facility and/or a process, and will test and verify its prediction capabilities using the historical data.

You must also establish, at the outset, a clear and mutual understanding and acceptance of how financial gains attributable to the ESCO's performance will be measured and quantified. What data will be monitored and collected, and how will that data be used? Can a computer model provide sufficiently valid results on which to base the sharing of benefits?

Be Assured of Performance

Most leading ESCOs have a level of confidence in their experience and capabilities to guarantee that their recommendations will deliver a minimum level of financial gain. The facility owner should insist on receiving guarantees for performance.

Last, the facility owner and ESCO must agree on steps to be taken in the event of disputes over the achieved financial gains. A prudent approach might be to mutually agree that an impartial third party would determine the achieved gains, or at least audit the ESCO's determination of achieved gains. The ESCO should employ an underwriting organization to back up its guarantees, and the ESCO's contract should include provisions for arbitrating difficult disputes.

With proper attention to the risks involved, meaningful financial gains can be mined from existing energy expenses. Get it done by establishing a win-win relationship with a qualified energy services company. ●

Contact Jay Raggio by phone at (925) 824-0330 ext. 305, or e-mail: jay_raggio@electro-test.com.

Select the Best Motor Repair Services

By Lynda Butek, Brithinee Electric, Colton, CA, representing the Electrical Apparatus Service Association (EASA)

There is never a good time for a motor to fail. But they do fail, and when one does, you will want to solve the problem as quickly and effectively as possible.

For best results, take steps to prequalify the motor service centers you plan to use before your motors fail.

Just as motor users differ in terms of the motors they use and the importance of those motors to their operation, service centers differ in terms of their approach, expertise, and capabilities. What constitutes the "best" shop will vary from end user to end user, and in some cases, from motor to motor.

Instead of discussing "good" versus "bad" repair shops here, we'll discuss how you, the motor user, can select the best motor service center for your work.

Do Your Homework

The first step in choosing the right motor service center is to do your homework. That starts in your own facility.

First, determine what kinds of motors you have in your operation. Do an inventory and note:

- What size are the motors?
- What are the voltages?
- Are they explosion proof?
- Are they pump motors?
- What other special characteristics do they have, if any?
- Can they be easily replaced?

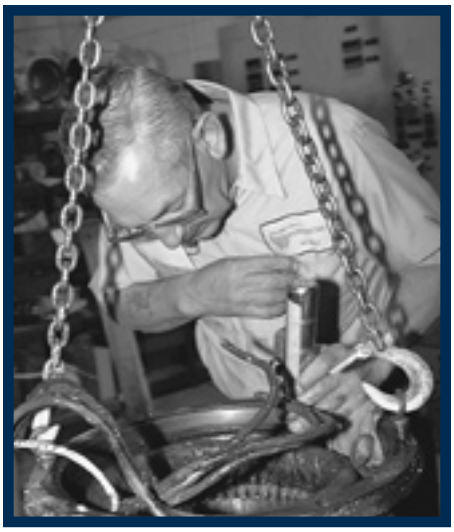
You should also know if you have a spare for any motor that is critical to your operation and that is not readily available from a local source. Find out if the service center has a spare. Consider how a day or a week of downtime caused by a failed motor would affect your operation and your bottom line.

Visit Several Service Centers

Once you have determined your needs, the next step is to visit several service centers in your area. Most repair facilities welcome customer visits so they can show off their shop.

On your visit, look at the center's equipment. Find out:

- Do they have the necessary handling equipment for your motors?
- Will their ovens and dip tanks accommodate your motors?



David Parsons, NREL/PIX05679

Make sure the service center's personnel are well trained and knowledgeable.

- Do they have the proper voltage to test your motors? Most motors should be run at full voltage as the final test of a good repair.
- How much experience do they have in repairing the types of motors you use?

Keep in mind that not every shop can handle every aspect of every motor repair. If that is the case, ask how they prequalify the shop or shops they will use to do the work they don't handle themselves.

Compare Customer Service

In addition to the technical expertise and services, you will want to choose a shop with exceptional customer service. Find out what extra steps the service center is willing to take for your convenience and to ensure high-quality work.

For example, pick-up and delivery or installation may be important to you. Some firms offer these services, some don't. You should discuss these services up front before a motor failure occurs.

Also, find out if the service center has a quality assurance program in place. Ask what types of before-and-after testing and reports they will supply. Ask to see the system they use to keep track of your motor while it is being repaired.

Look at the shop's inventory of new motors. Do they stock the types of motors you use? Do they stock premium efficiency motors for replacement? If not, do they have a ready source for this equipment to minimize your downtime?

Make sure the shop gives you repair/replace options every time you send in a motor for service.

If your facility runs around the clock, 365 days a year, you may well need the same kind of service from your motor service center. How do they handle off-hours service? Can they handle your needs even on holidays?

Finally, get a list of references, and call those references to see what their experiences have been with the service center.

Be on the Same Wavelength

Another benefit of visiting the service center is the opportunity to meet face-to-face with the people who will do your work. By meeting them, you can assess how comfortable you will feel working with them. You should be confident they understand your motor repair needs and that they will treat your motor problems with real concern. If not, keep looking.

Invest in Good Work

Once you are satisfied that a service center can do your work, remember that doing a good repair job takes time. Cutting corners can result in a poor repair. If you want the service center to do a good repair job, you must be willing to let them do that job.

Taking the time to assess your motor needs and determining the best shop to fill those needs will help you get the most from your repair dollar. This will be time and money well spent. ●

Contact Lynda Butek by phone at (909) 825-7971 or e-mail: lynda_butek@mail.brithinee.com.

All the points mentioned here, and more, are in OIT's 4-page brochure Guidelines to a Good Motor Repair. *Find the brochure on Energy Matters Extra at* ***www.oit.doe.gov/bestpractices/explore_library/emextra.***

For more detailed information, you can obtain the new Service Center Evaluation Guide, *which offers end users step-by-step guidelines for evaluating the quality, competence, and capabilities of motor repair shops. Get advice on using interviews and walk-through inspections to evaluate a shop's adherence to quality workmanship, as well as a comprehensive Service Center Capability Checklist to help you select a repair shop that uses techniques to optimize reliability and efficiency.*

This new guide is available through the OIT Clearinghouse at ***www.oit.doe.gov/clearinghouse****, or (800) 862-2086. Quantities are limited—order today.*

Ask the Clearinghouse

This column highlights key questions from industrial customers. The questions are answered by the Office of Industrial Technologies (OIT) Clearinghouse. Through the OIT Clearinghouse, you can access the full portfolio of OIT resources to help make your industry more energy efficient, productive, and competitive. The Clearinghouse can help you find resources such as publications and software, or information about working with OIT and cost-sharing opportunities. You can call the Clearinghouse for technical advice on a variety of topics, such as motor, steam, and compressed air systems.

Clearinghouse engineers and technical staff expertly answer a wide range of industrial efficiency questions, 11 hours a day, Monday-Friday. The Clearinghouse also has access to industry experts around the country. Call the OIT Clearinghouse at (800) 862-2086, or go to **www.oit.doe.gov/clearinghouse/** for additional information.

Q: What are "typical" savings from using an adjustable speed drive (ASD) with a standard motor?

A: ASD-related energy savings are substantial in situations where an existing centrifugal pump or fan has been throttled to meet system flow requirements. However, it is difficult to report "typical" savings, as the savings potential is extremely dependent upon the load profile imposed upon a motor by the equipment it drives. (The load profile is the number of hours per year the motor spends at each load point.)

We've reviewed a number of adjustable speed drive case studies. These are not "average" applications, but are the types of applications for which a drive is often cost-effective. In the table at right are percentages of energy savings. Note: these are not percentages of total facility energy use; they are usage reductions for the ASD-controlled motor-driven equipment.

The Wisconsin Center for Demand-Side Research also completed a review of ASD case studies. Energy savings reported by type of process are:

- Air conditioners and heat pumps 20%
- Pumps and compressors 20% to 25%
- Central refrigeration systems 25% to 35%
- Blowers and fans 30% to 35%
- Boiler fans and feedwater pumps 30% to 50%

The most cost-effective opportunities for ASDs are in situations where the equipment operates only partially loaded for significant time periods. Even small changes in speed can result in significant reductions in energy consumption. For instance, lowering the speed of a fan or pump by 20% may reduce shaft power requirements by as much as 50%.

For more about motor-driven systems, variable speed drive applications, and motor-drive interactions, visit OIT's Best-Practices Web site at **www.oit.doe.gov/bestpractices/motors/.** Here you can access detailed case studies, technical publications, ASD-related software, and a training and events calendar. ●

Facility Type	ASD Application	Energy Savings
Resource Recovery Facility	500 hp induced draft fans	34%
Tube Company	ASD on tube drawing bench 200 hp	34%
Textile Plant	15 HVAC fan motors	59%
Injection Molding	60 to 100 hp motors	71%
Seven Manufacturing Sites	Injection molding machines	37% average
Paper Mill	800 hp and 1,500 hp ID fans	43%
Paper Mill	100 hp motor driving a stock transfer pump	39%
Pulp and Paper Mill	Three 250 hp boiler forced draft fans	68%
Lumber Drying Facility	Small recirculation fan motors	50%
Dairy Products Plant	Two 100 hp feedwater pumps	41%
Wastewater Treatment Facility	Three 50 hp centrifugal pumps used in a dissolved air flotation process	20%

Looking for a Few Good Lessons Learned

In the January/February 2001 edition of *Energy Matters,* we'll focus on the important theme of energy system maintenance. The topics will address issues such as developing a contingency maintenance method, equipment right-sizing, and the consequences of improper maintenance. To emphasize the need for a reliable maintenance plan, we think it would be useful to show by example what happens when no such plan is in place. You can help us make the point by sending *Energy Matters* your "lessons learned" from a lack of or improper industrial energy system maintenance. We'll publish some of these examples in the January/February issue. Rest assured, no names or company identities will be published—just a general description of what happened and how it could have been avoided.

Send* Energy Matters *your examples of what happens when no plan for reliable maintenance is in place.

Mail or e-mail your examples to the *Energy Matters* Editor: Lessons Learned. Please include your name and phone number (to verify information only), and send by December 1, 2000. ●

Performance Optimization Tips

The Vital Few

By Don Casada, OIT Best-Practices Program, Knoxville, TN

In the January/February 2000 issue of *Energy Matters,* Mac Smith discussed a 7-Step Systems Analysis process for implementing a reliability centered maintenance program[1]. The first of his seven steps was to focus on "bad actor" systems, noting that 80% of the maintenance and production problems come from 20% of the systems.

The general rule of 80/20 was given the name "Pareto principle" in the 1950s by J.M. Juran, an eminent industrial engineer, in recognition of work done by Italian economist Vilfredo Pareto on the distribution of wealth[2]. Juran coined a phrase—"the vital few and trivial many"—that succinctly describes the concept, and he noted that it has application in many fields.

Was he ever right! A quick search for Internet references to "Pareto" found the principle related to the following concerns (to cite just a few):

- Time management
- Evangelism
- Military logistics
- Medical expenses
- Local area network traffic
- Bacteriological use of genomic data
- Computer code debugging

The general idea is that a relatively small fraction of a particular population (the "vital few") is responsible for a large fraction of the results—whether positive or negative, while the larger population segment (the "trivial many") is responsible for a small fraction. There is nothing magical about the numbers 80 and 20, by the way—they just illustrate the commonly observed disproportionality of cause and effect.

As a common practical application, consider maintenance of an automobile's engine and power train. While there may be 15 or 20 periodic maintenance items recommended by the manufacturer, engine lifetime is most significantly affected by proper maintenance of two fluids—engine oil and engine coolant. Careful attention to these two items may exceed the benefits of all the other items combined.

Industrial Energy Opportunities

Does Juran's principle of the "vital few and trivial many" apply in industrial energy consumption? Absolutely.

There are many manifestations of this principle in DOE's *United States Industrial Motor Systems Market Opportunities Assessment,* published in 1998[3]. One stark example involved motor size. While almost 60% of the motor population was found to be in the range of 1 to 5 horsepower (hp), this segment consumed less than 5% of the energy. On the other hand, the less than 6% of the population greater than 50 hp was responsible for 72% of the energy consumption. Table 1 shows population and energy consumption as a function of size group from the study; Figure 1 shows the cumulative population and energy distributions.

Table 1

Horsepower	Population, %	Energy, %
1–5	58.8	4.8
6–20	26.4	10.4
21–50	9.1	12.7
51–100	2.9	12.7
101–200	1.8	14.4
201–500	0.7	15.8
501–1000	0.2	13.4
1000+	0.1	15.7

Source: *United States Industrial Motor Systems Market Opportunities Assessment*, December 1998.

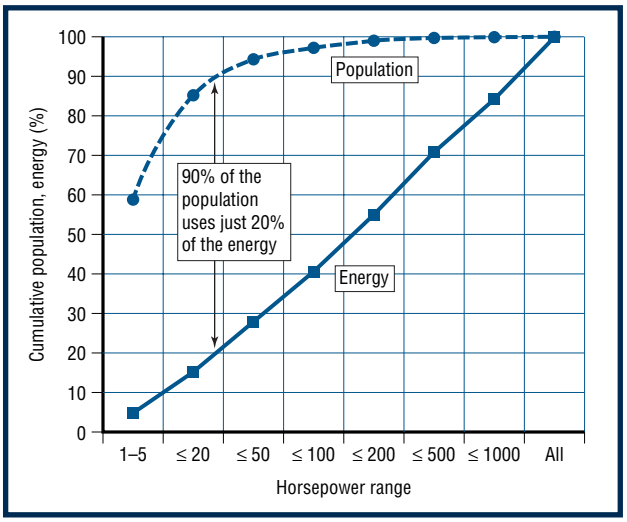


Figure 1. Cumulative motor population and energy versus motor size.

Interesting information, but are there practical applications? Again, absolutely.

Assume we are tasked with identifying energy-saving opportunities in the motor-driven systems at an industrial facility. Let's say the motor population of 10,000 is similar in population and use distribution to that found in the DOE study. And let's also assume that we don't have a nice database listing of motors by size and application (a common situation). Should our first step be to inventory the entire facility and develop such a database, including information such as nameplate horsepower, full load current, and efficiency?

To answer that, let's make a couple more assumptions: It takes 20 minutes to locate and tabulate the information for the average motor; and the work is to be done by a technician at $25/hr. Given those assumptions, the cost of inventorying all 10,000 motors would be more than $83,000. Gulp!

But $71,000 of that cost would be associated with motors that are 20 hp or less. If we only look at the 570 motors that are larger than 50 hp, the inventory cost would be less than $5,000.

So instead of launching into development of a full-blown inventory, a more common-sense approach might be to simply accompany operators in each section of the plant during normal rounds. Operators will not only identify the big stuff so that the technician can do the inventory, but can give a quick guess as to what fraction of the time the motor is operated, a critical element in subsequent review.

Other filters or screens can be used to help further reduce the number of a plant's "vital few" pieces of equipment. For example, in many plants, focusing on centrifugal loads such as pumps, fans, and compressors will pay the greatest dividends. The DOE study found that more than 60% of all potential energy savings were in such systems.

The Pumping System Assessment Tool (PSAT) software program developed by DOE can be downloaded free of charge. Included with the PSAT download is a prescreening document that, although focused on pumps, includes some simple, primary screening guidance, which applies generically and directs the user toward the "vital few" ma-

(continued on page 7) ▶

continued from page 6

chines. The program can be downloaded from the BestPractices Web site at **www.oit.doe.gov/bestpractices/software_databases.** Alternatively, a CD that includes both PSAT and MotorMaster+ motor selection and management tool can be requested from the OIT Clearinghouse at (800) 862-2086.

Not a Cure-All, But Still Good for What Ails Ye

The "vital few and trivial many" principle is not universal, and its application won't solve all our problems. But it is a great first step, not only in reliability centered maintenance efforts, but in prescreening for potential energy reductions. And it is no coincidence that the big stuff that runs a lot is high on the list for potential energy reduction review and is likely to be a high reliability priority.

Don't make your energy program a game of Trivial Pursuit—make it a search for The Few, The Proud, The Machines (the big ones, that is). ●

E-mail Don Casada at doncasada@icx.net.

[1] RCM—Gateway to a World Class Maintenance Program, Anthony M. (Mac) Smith.
[2] Juran later regretted so naming the principle (www.juran.com/research/articles/SP7518.html), since it is universal in nature; he noted that Pareto's observation was simply application to one particular field of many.
[3] The publication is available for download at **www.oit.doe.gov/bestpractices/explore_library/pdfs/mtrmkt.pdf.**

Apply Now for OIT's Plant-Wide Opportunity Assessments

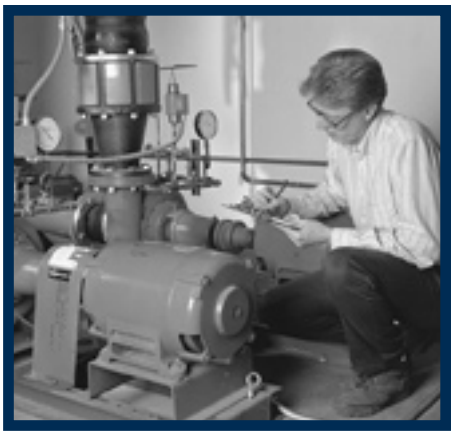
DOE's Office of Industrial Technologies (OIT) recently announced the third round of solicitations for Plant-Wide Opportunity Assessments. If your company has a plan to enhance productivity and energy efficiency throughout your facility, take advantage of this opportunity for cost-shared funding and technical assistance from OIT. Through the BestPractices program, OIT will share up to half the cost, or up to $100,000, for companies to evaluate energy efficiency potential in areas, such as:

- Electric motor systems
- Steam systems
- Compressed air systems
- Combined heat and power systems
- Process heating systems
- Process modifications
- Adoption of emerging technologies

Other benefits include national recognition and access to a whole range of OIT's emerging technologies, tools, and resources.

To date, OIT has awarded funding to 13 companies that successfully conveyed a comprehensive, plant-wide approach to implementing state-of-the-art tools and information, process engineering techniques, and best practices for operational, plant support, and process systems.

Your plant, too, could be on its way to improved performance. Submit a plant-wide assessment proposal before November 22, 2000 for consideration in this solicitation. To see the Request for Proposals, visit Energy Matters Extra at **www.oit.doe.gov/explore_library/emextra,** or contact Mitch Olszewski by e-mail at zmo@ornl.gov or fax (865) 576-0493 (e-mail is preferred). ●



Jeff Urlaub, NREL/PIX01774

Send OIT your plan to assess systems and processes in your plant.

Letters to the Editor

Energy Matters *welcomes your typewritten letters and e-mails. Please include your full name, address, organization, and phone number, and limit comments to 200 words. Address correspondence to:*

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Golden, CO 80401
E-mail: michelle_sosa-mallory@nrel.gov

We publish letters of interest to our readers on related topics, comments, or criticisms/corrections of a technical nature. Preference is given to letters relating to articles that appeared in the previous two issues. Letters may be edited for clarity, length, and style.

To the Editor:

Thank you for the July/August issue of *Energy Matters*. The Guest Column by Steve Bolles and "Selling with Humility" by Don Casada were both excellent, interesting, and thought provoking. I am saving this issue in a special file so that I can reread it periodically!

Cal Broomhead
Bureau of Energy Conservation
San Francisco, CA

Editor's Note:

The July/August issue was a popular one with readers! We appreciate your feedback. Find the issue online at **www.oit.doe.gov/bestpractices/exlpore_library.**

Energy Matters Extra

On page 2 of this issue, read an overview on selecting the right motor service center. Look to Energy Matters Extra for more details on working with a center to ensure the best service for your motor repair needs. Download *Guidelines to Good Motor Repair,* and refer to this brochure for helpful tips on this topic.

Be sure to review the latest Request for Proposals for OIT's Plant-Wide Opportunity Assessment solicitation. Find all the information you need to prepare and submit a proposal to conduct a plant-wide assessment in your facility. The solicitation closes November 22, 2000—so don't delay.

You can also connect to details about OIT's 4th Industrial Energy Efficiency Symposium and Exposition, which is set for February 19-21, 2001, in Washington, DC. Register for the conference online and be ready to learn about the challenges and opportunities that lie ahead for U.S. industry.

Visit Energy Matters Extra at **www.oit.doe.gov/explore_library/emextra.** ●

Coming Events

OIT Expo to Address Industry's Competitive Challenges and Solutions

The 4th Industrial Energy Efficiency Symposium and Exposition, "Global Competition: Challenges and Solutions," is set for February 19-21, 2001, in Washington, DC. OIT is cosponsoring the event in partnership with some of the nation's leading manufacturing and materials companies. Plan to attend this national conference to find out what challenges face the most energy-intensive industries and to learn about new technological and marketing opportunities to address these challenges. To find out more about the conference, visit the Web site at **www.oitexpo4.com**, or call (877) 648-7967. Watch for more about the event in coming issues of *Energy Matters.*

To keep up-to-date on OIT training and other events, check the calendar regularly on Energy Matters Extra at ***www.oit.doe.gov/bestpractices/explore_library/emextra.***

BestPractices

The Office of Industrial Technologies (OIT) BestPractices initiative and its *Energy Matters* newsletter introduces industrial end users to emerging technologies and well-proven, cost-saving opportunities in motor, steam, compressed air, and other plant-wide systems. For overview information and to keep current on what is happening office wide, check out the newsletter—The OIT Times—at **www.oit.doe.gov/oit-times.**

Information Clearinghouse

Do you have questions about using energy-efficient process and utility systems in your industrial facility? Call the OIT Information Clearinghouse for answers, Monday through Friday 9:00 a.m. to 8:00 p.m. (EST).

HOTLINE: (800) 862-2086

Fax: (360) 586-8303, or access our homepage at www.oit.doe.gov/clearinghouse.

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